

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A power generation, distribution and on-board electrical power supply system for low-emission surface navy vessels of various classes and sizes, comprising:

at least one cruise propulsion system, suppliable with electrical power from a DC network; and

at least one additional propulsion system, to be switched on when required and suppliable with electrical power from an AC network, the DC network and the AC network being configured in such a manner as to allow power to be transferred in both directions therebetween.

2. (Previously Presented) The system as claimed in claim 1, wherein the DC network has at least one fuel cell module for generation of electrical power.

3. (Previously Presented) The system as claimed in claim 2, wherein the at least one fuel cell module comprises air-breathing fuel cells which are connected to one another.

4. (Previously Presented) The system as claimed in claim 1, wherein the AC network includes at least one synchronous generator which is driven by a gas turbine to generate electrical power.

5. (Previously Presented) The system as claimed in claim 1, wherein the DC network is a 1 kV to 15 kV network.
6. (Previously Presented) The system as claimed in claim 1, wherein the AC network is a 1 kV to 15 kV/50 Hz or 60 Hz network.
7. (Previously Presented) The system as claimed in claim 1, wherein the DC network and the AC network jointly supply electrical power to an on-board network in the vessel as required.
8. (Previously Presented) The system as claimed in claim 1, wherein a DC intermediate circuit for coupling an on-board network to at least one of the DC and the AC network.
9. (Previously Presented) The system as claimed in claim 1, wherein the DC network supplies weapon and electronic systems with electrical power.
10. (Previously Presented) The system as claimed in claim 1, wherein a plurality of fuel cell modules are arranged distributed in different sections or safety zones, which are compartmentalized from one another in the navy vessel, and form a fail-safe network.
11. (Previously Presented) An system as claimed in claim 1, further comprising an electrical network, which is formed in the navy vessel, that includes current limiting appliances which are in the form of at least one of HTS (high-temperature superconductor) current limiters and semiconductor switches, and by which the reaction of voltage dips in the event of short circuits,

including network elements which are not affected, is restricted to a time interval in the region of a few milliseconds, and voltage dips such as these can thus be restricted to the respectively affected network element.

12. (Previously Presented) The electrical network as claimed in claim 11, wherein the electrical network includes current limiting appliances, each of which includes at least one of an HTS current limiter, a semiconductor switch and a circuit breaker, by which it is possible to protect energy sources in the form of at least one of electrical power generation units and energy stores.

13. (Previously Presented) The system as claimed in claim 12, wherein the HTS current limiters are combined with secondary protective devices which act on the circuit breaker.

14. (Previously Presented) The system as claimed in claim 11, wherein the electrical network is in the form of a hierarchical network with current/time grading, in whose at least one of network couplings and connecting lines the current limiting appliances are arranged.

15. (Previously Presented) The system as claimed in claim 11, wherein the current limiting appliances are arranged such that current selectivity is achievable thereby, in conjunction with a configuration of the electrical network.

16. (Previously Presented) The system as claimed in claim 11, wherein the electrical network in the navy vessel is in the form of a hierarchical network with at least one of as little interconnection as possible and reaction-free interconnection.

17. (Previously Presented) The system as claimed in claim 16, wherein the reaction-free interconnection is provided by diode-decoupled feeding of at least one of DC switching systems and DC loads from two different vessel protection sections.

18. (Previously Presented) The system as claimed in claim 11, wherein of the electrical network that is formed is switchable from a normal state, in which it is an interconnected electrical network, to a special state, in which it is a hierarchical network and the effectiveness of the current limiting appliances is ensured.

19. (Previously Presented) The system as claimed in claim 11, wherein the switches include a communication device by which contact can be made with a higher-level switch, which trips without any time delay, in the event of failure of the switching device.

20. (Previously Presented) The system as claimed in claim 11, wherein the electrical network includes an automation and control device having an on-time diagnosis unit with a high computation speed.

21. (Previously Presented) The system as claimed in claim 20, wherein at least one of a sensor and a signaling unit is provided at every potential fault location, by which a current

limiting appliance state which is associated with the respective fault location or a physical variable which is associated with the respective fault location is detectable and passable to the on-time diagnosis unit for the automation and control device.

22. (Previously Presented) The system as claimed in claim 21, wherein the at least one sensor and signaling unit include supplies which are independent of their fault locations.

23. (Previously Presented) The system as claimed in claim 21, wherein the connection between the on-time diagnosis unit for the automation and control device and at least one of the sensor and the signaling unit is provided by way of wire-based elements.

24. (Previously Presented) The system as claimed in claim 21, wherein the sensor includes back-up sensors which detect without the use of wires and transmit without the use of wires, with decentralized repeaters being installed in a vessel protection section.

25. (Previously Presented) The system as claimed in claim 1, wherein at least one of PEM and HT fuel cells are provided as electrical power generation units, by which direct current is suppliable to a main network in the form of a DC medium-voltage network.

26. (Previously Presented) The system as claimed in claim 1, wherein at least one of batteries, solid-state storage devices and rotating storage devices, are provided as energy stores.

27. (Previously Presented) The system as claimed in claim 1, wherein the system includes at least one of network couplings and network connecting lines, in each of which there is an HTS current limiter.
28. (Previously Presented) The system as claimed in claim 1, wherein the system includes HTS current limiters with a superconductor composed of YBaCuO compounds, which is designed using thin-film technology and uses liquid nitrogen as a cryogenic liquid.
29. (Previously Presented) The system as claimed in claim 1, further comprising outgoers in which semiconductor switches are arranged.
30. (Previously Presented) The system as claimed in claim 1, wherein the system includes a main on-board network with outgoers which connect the on-board network intermediate circuits and includes semiconductor switches.
31. (Previously Presented) The system as claimed in claim 30, wherein the on-board network of the system has main groups associated load outgoers and semiconductor switches.
32. (Previously Presented) The system as claimed in claim 1, wherein energy sources in the form of at least one of electrical power generation units and energy stores are protectable by semiconductor switches.

33. (Previously Presented) The system as claimed in claim 1, further comprising an electrical network having semiconductor switches in the form of at least one of IGCT switching elements (integrated gate commutated thyristors), GTO (gate turn-off thyristors), IGBT (insulated gate bipolar transistors) and MOS transistors.

34. (Previously Presented) The system as claimed in claim 33, wherein switching elements of the semiconductor switches, in the form of IGCTs, are protected by snubber circuits.

35. (Previously Presented) The system as claimed in claim 1, wherein the system is a standard equipment segment for navy vessels of various size, with size matching being provided in the form of at least one of network reduction and enlargement.

36. (Previously Presented) The system as claimed in claim 1, wherein POD propulsion systems are used as the cruise propulsion system.

37. (Previously Presented) The system as claimed in claim 1, wherein electrical in-board motors are used as the cruise propulsion system.

38. (Previously Presented) The system as claimed in claim 22, wherein a connection between the on-time diagnosis unit for the automation and control device and at least one of the sensor and signaling units is provided by way of wire-based elements.

39. (Previously Presented) The system as claimed in claim 22, includes back-up sensors which detect without the use of wires and transmit without the use of wires, with decentralized repeaters being installed in a vessel protection section.